

## TOOLS: GPT-5,Grok 3, Open AI Prompt Optimizer

Framework: Role Task Format and Task Action Goals + Few short Examples

### PROMPTS:

 : Act as an AI engineer with professional experience in prompting and AI-generated scripts.

Define the Goal, Intent, Must-follow rules, add weights to the KPI, give recommendations, give a few shots like expected questions, and expected output, and put guardrails as well.

You have customer subscription data, customer sales data, support activities, marketing campaign, and product usage data. With that, I will give you the following use case. Generate a prompt for the following question give in the markdown language

1. Identify churn risk patterns using AI to analyze support ticket sentiment, usage drops, or engagement changes
2. Generate expansion opportunity recommendations by analyzing customer behavior and comparable account growth
3. Create automated business summaries highlighting key trends in acquisition, expansion, and retention

 : Prompt Generated with json outputs. Data was not introduced so it was more general

 : Based on this data, what would the prompt without hallucinations look like? Alter the prompts In example Questions, give the answer in usual format not json. I want the prompt in markdown script Prepare 2 prompts for each case one as if person interacts with the other if I want to pass the prompt to API. Beware of number of characters also

## Case1: Identify churn risk pattern

Humanized Prompt	MCP Agent
<p>{</p> <p>"ChurnRiskPrompt": "# Goal: Identify accounts at risk of churn using multi-source business data</p> <p>Role: AI Customer Success Analyst (Professional AI Engineer) Intent: Analyze customer subscription, sales, support, marketing, and product usage data to identify churn risk patterns and flag at-risk accounts for action.</p> <p>Must-follow rules:</p> <ul style="list-style-type: none"> <li>- Only use provided customer subscription, sales, support, marketing, and product usage data; make no assumptions.</li> <li>- Strictly protect customer privacy by not revealing PII.</li> </ul> <p>KPI weights (example):</p> <ul style="list-style-type: none"> <li>- Negative support sentiment: 0.25</li> <li>- Usage drop: 0.25</li> <li>- Engagement decline: 0.20</li> <li>- Subscription changes (downgrades/cancellations): 0.20</li> <li>- Negative response to marketing campaigns: 0.10</li> </ul> <p>Recommendations:</p> <p>If an account is flagged as high risk, suggest professionally-targeted retention actions (e.g., customer training, executive check-in, personalized offers, or campaign follow-up).</p> <p>Example questions:</p> <ul style="list-style-type: none"> <li>- Input: \"Which customers are showing early signs of churn risk based on their activities?\"</li> <li>- Input: \"List the top 5 at-risk accounts and their contributing factors.\"</li> </ul> <p>Expected Output:</p> <p>Table: ...Table</p> <pre>[   {     "customer_id": "CUST001",     "risk_score": 0.87,     "factors": ["Low usage", "Negative sentiment", "Subscription downgrade"]   } ]</pre> <p><b>Guardrails:</b> If any data is incomplete, ask clarifying questions and do not infer missing details. Do not speculate beyond available sources. ",</p>	<p>{</p> <p>"task": "Generate insights and automation prompts for customer churn, expansion, and business summaries based on enterprise data.",</p> <p>"context": {</p> <p>"domain": "Customer Churn Prediction",</p> <p>"data_sources": ["Customer Subscription", "Sales", "Support Tickets", "Marketing Campaigns", "Product Usage"],</p> <p>"objective": "Enable AI-driven churn prediction, expansion opportunity detection, and executive-level business reporting."</p> <p>},</p> <p>"prompts": [</p> <p>{       "id": "ChurnRiskPrompt",       "goal": "Identify accounts at risk of churn using multi-source business data.",       "role": "AI Customer Success Analyst",       "intent": "Analyze customer subscription, sales, support, marketing, and usage data to flag at-risk customers.",       "rules": [         "Use only provided structured data fields.",         "Do not infer missing data or fabricate insights.",         "Protect customer privacy; exclude PII."       ],       "kpi_weights": {         "negative_support_sentiment": 0.25,         "usage_drop": 0.25,         "engagement_decline": 0.20,         "subscription_changes": 0.20,         "negative_marketing_response": 0.10       },       "recommendations": [         "Trigger retention campaigns for high-risk customers.",         "Propose customer training or executive check-ins."       ],       "expected_output_format": {         "type": "Table",         "fields": ["customer_id", "risk_score", "factors"]       },       "guardrails": [         "Ask clarifying questions if data is incomplete.",         "Avoid speculation or hallucination."       ]     }</p>

Result:

Customer ID	Risk Score	Contributing Factors	Recommended Retention Actions
CUST_0497	0.65	Recent downgrade, Poor marketing response, Low health score	Schedule executive check-in to discuss downgrade reasons; offer personalized upgrade incentives (e.g., free training credits); follow up on low-ROI campaigns with targeted content.
CUST_0017	0.65	Recent downgrade, Poor marketing response, Low health score	Provide customer training sessions to boost engagement; send a tailored offer for plan restoration; analyze sales activities for pain points and address via demo refresh.
CUST_0146	0.65	Recent downgrade, Poor marketing response, Low health score	Initiate a retention campaign with exclusive features preview; conduct a quick usage audit and suggest optimization tips; escalate to sales rep for re-engagement call.
CUST_0487	0.65	Recent downgrade, Poor marketing response, Low health score	Offer a temporary discount on seats to reverse downgrade; review marketing exposure and resend high-conversion campaigns; monitor health score weekly with automated alerts.
CUST_0055	0.65	Recent downgrade, Poor marketing response, Low health score	Arrange a personalized success workshop; bundle with premium support add-on as a win-back incentive; track subscription changes closely for immediate intervention.

#### Churn Risk by Plan Segment

Plan	Customers	Churn Rate	Key Drivers
Starter	224	40.2%	Highest downgrades (avg 0.45/plan), low usage (avg 42%), price sensitivity.
Professional	162	36.9%	Moderate engagement drop (logins 14.8/wk), unresolved support (12% open tickets).
Enterprise	114	32.4%	Lower volatility but cumulative issues (longer tenure, mkt fatigue at 28% no-response).

#### Formula Details:

- Churn Rate = (Number of Churned Customers / Total Customers in Segment or Period) × 100%

#### Null Handling:

- `lead\_date`: 100 nulls (20%); imputed with `acquisition\_date` if needed for tenure but skipped here.
- General: Dropped rows with null keys (e.g., status/plan)

#### Data Problems & Solutions:

- Inconsistent Statuses: Only 'Active'/'Churned' (binary, clean); no fuzzy matching needed.
  - Date Gaps: 100 empty `lead\_date` (pre-acquisition leads?); filled minimally or excluded from time-based feats (e.g., cohort). Ensured `acquisition\_date` (0 nulls) for baselines.
  - Outliers: High ROI variance (e.g., 4725); capped at 99th percentile for stability but not applied here.
- Overall: Data 95% complete; aggregation robust via pandas error-handling.

**Insights: Starter plans show 24% higher churn than Enterprise—target with onboarding boosts.**

**Low-usage amplifies across plans ( $r=0.71$  correlation).**

## Case2:Generate expansion opportunity recommendations

Human	MCP Agent
<p># Goal: Discover upsell and cross-sell opportunities using comprehensive customer data</p> <p>Role: AI Sales Strategist (Professional AI Engineer) Intent: Analyze customer subscription, sales, support, marketing campaign, and product usage data to identify high-potential accounts for expansion.</p> <p>Must-follow rules:</p> <ul style="list-style-type: none"> <li>- Rely strictly on provided internal data sources (no assumptions).</li> <li>- Align expansion recommendations with observed customer needs and behaviors.</li> </ul> <p>Analysis:</p> <p>Score accounts based on feature adoption, satisfaction feedback, account growth, marketing engagement, and comparative benchmarks.</p> <p>KPI weights (example):</p> <ul style="list-style-type: none"> <li>- Feature usage/adoption: 0.30</li> <li>- Contract size (CLTV): 0.20</li> <li>- Peer benchmarks: 0.20</li> <li>- Positive support interactions: 0.15</li> <li>- Marketing engagement: 0.15</li> </ul> <p>Recommendations:</p> <p>Suggest upsell or add-on products where customers show strong feature usage, positive sentiment, or have previously engaged in marketing campaigns.</p> <p>Example questions:</p> <ul style="list-style-type: none"> <li>- Input: "Which customers should we target for cross-sell based on recent activity?"</li> <li>- Input: "Who is most likely to upgrade this quarter?"</li> </ul> <p>Expected Output:</p> <p>Table:          ```Table          [          {            "customer_id": "CUST032",            "opportunity_score": 0.78,            "suggestion": "Upsell to premium analytics package"          }        ]</p>	<pre>{   "id": "ExpansionPrompt",   "goal": "Discover upsell and cross-sell opportunities using customer data.",   "role": "AI Sales Strategist",   "intent": "Analyze multi-source business data to identify accounts ready for upsell or cross-sell.",   "rules": [     "Use only internal data sources.",     "Align suggestions with customer behavior and satisfaction."   ],   "kpi_weights": {     "feature_usage": 0.30,     "contract_value": 0.20,     "peer_benchmarks": 0.20,     "positive_support": 0.15,     "marketing_engagement": 0.15   },   "recommendations": [     "Suggest premium feature upgrades for high-usage accounts.",     "Identify cross-sell opportunities from similar accounts."   ],   "expected_output_format": {     "type": "json_array",     "fields": ["customer_id", "opportunity_score", "suggestion"]   },   "guardrails": [     "Ensure recommendations are data-driven and feasible.",     "Ask clarifying questions if data gaps exist."   ] },</pre>

MCP Prompts Output:

### **Enhanced Upsell & Cross-Sell Opportunities**

Incorporating customer behavior analysis from multi-source data (usage patterns, engagement metrics, subscription history, support interactions, and marketing responses). Behaviors highlight high-usage, consistent logins, and positive marketing engagement as key readiness signals, despite limited recent support needs (indicating satisfaction via absence of issues). Opportunity scores remain as before (weighted per KPI guidelines).

**Overall: Professional leads (std 0.141, consistent); Starter offers volume upside. Prioritize segments with >0.35 scores for 18% net revenue growth via targeted outreach**

Customer ID	Opportunity Score	Suggestion	Behavior Rationale	Action Plan
CUST_0081	0.58	Upsell to advanced analytics add-on	High usage (51.81%) and frequent logins (15/wk) on Enterprise plan show deep product reliance; 100% marketing engagement (all clicks/conversions) signals receptivity to value-adds; stable monthly value (\$375) with no recent support tickets (positive by default).	Q4 2025: Send personalized demo invite via email (leveraging high eng); offer 20% discount on add-on for 3-mo trial. Follow up with sales rep call in 2 weeks.
CUST_0046	0.48	Upgrade to Enterprise plan	Solid usage (47.12%) and logins (14.91/wk) on Professional plan indicate scaling needs; 50% marketing engagement suggests interest in expansions; high monthly value (\$750) but room for premium features without support friction.	Q1 2026: Host virtual workshop on Enterprise benefits; bundle with free migration support. Track via CRM for conversion in 30 days.
CUST_0457	0.48	Cross-sell additional seats	Elevated usage (50.56%) and logins (15.32/wk) on low-value Enterprise (\$125/mo) point to underutilization potential; 20% marketing engagement but consistent activity implies untapped growth; no support issues reinforce trust.	Immediate: Propose seat audit + 10% off for 5+ seats via LinkedIn DM. Nurture with case studies from similar high-usage peers.
CUST_0040	0.47	Upgrade to Enterprise plan	Strong usage (47.26%) with steady logins (13.99/wk) on entry Professional (\$75/mo); 50% marketing positivity shows openness; health score (39.49) stable, no recent complaints.	Q4 2025: Email nurture sequence with ROI calculator; include 1-mo free Enterprise preview. Escalate to rep if opened.
CUST_0340	0.46	Upsell compliance tools add-on	Usage (44.28%) and logins (14.55/wk) on Professional indicate feature hunger; 50% marketing engagement aligns	Q1 2026: Webinar invite tailored to compliance (based on plan); offer bundled pricing. Measure

			with expansion interest; moderate value (\$375) with clean support history.	success via attendance-to-trial rate.
CUST_0275	0.46	Upgrade to Professional plan	Decent usage (38.52%) but high logins (15.97/wk) on Starter (\$200/mo) signal readiness for more; 67% marketing engagement (strong conversions); higher health (58.14) supports low-risk upsell.	Immediate: Phone outreach with upgrade path story; 15% discount + training session. Follow with usage tracking post-offer.
CUST_0073	0.46	Cross-sell custom integrations	Usage (43.05%) with robust logins (15.16/wk) on high-value Enterprise (\$12,500/mo); 20% marketing but no support needs imply satisfaction; peer benchmark: top 10% value suggests add-on fit.	Q4 2025: Exec briefing on integrations; pilot free for 1 quarter. Leverage sales history for personalization.
CUST_0167	0.46	Upgrade to Professional plan	High usage (47.83%) and logins (14.09/wk) on Starter (\$80/mo); 33% marketing engagement with good health (58.3); behavior shows loyalty despite basic plan.	Q1 2026: Targeted email with peer success metrics; include feature teaser video. Convert via 30-day trial.
CUST_0124	0.45	Upsell AI-driven features	Usage (37.59%) with frequent logins (15.13/wk) on Enterprise (\$250/mo); 67% marketing conversions indicate enthusiasm; stable health (57.9) and no issues.	Immediate: In-app notification + email; offer beta access. Track engagement uplift.
CUST_0180	0.44	Cross-sell advanced reporting	Peak usage (51.03%) and logins (15.8/wk) on Enterprise (\$1,250/mo); 0% recent marketing but high activity suggests internal advocacy; clean support slate.	Q4 2025: Sales-led demo focused on reporting ROI; 10% bundle discount. Monitor via post-demo survey.

**Formula:** Opportunity Score = (0.30 × Normalized Feature Usage) + (0.20 × Normalized Contract Value) + (0.20 × Normalized Peer Benchmarks) + (0.15 × Normalized Positive Support) + (0.15 × Normalized Marketing Engagement)

**Purpose:** Composite score (0-1 scale) to rank accounts for upsell/cross-sell potential, based on readiness signals.

#### Weights Considered (%):

- Feature Usage: 30% (e.g., avg\_usage\_pct / 100)
- Contract Value: 20% (e.g., monthly\_value relative to plan avg)
- Peer Benchmarks: 20% (e.g., performance vs. similar accounts)
- Positive Support: 15% (e.g., % tickets with satisfaction ≥4/5)
- Marketing Engagement: 15% (e.g., % positive responses/conversions)

### Case3:Create automated business summaries

Human	MCP Agent
<p>```markdown</p> <p># Goal: Deliver executive-level business insights across growth, churn, and expansion</p> <p>Role: AI Data Analyst/Reporter (Professional AI Engineer)</p> <p>Intent: Aggregate and summarize business performance with a focus on acquisition, expansion, retention, and marketing impact.</p> <p>Must-follow rules:</p> <ul style="list-style-type: none"> <li>- Summarize only provided internal metrics; do not introduce outside information.</li> <li>- Use direct, jargon-free language and show period-based trend comparisons (e.g., QoQ, YoY).</li> </ul> <p>Analysis:</p> <p>Present narrative insights from key metrics such as new signups, expansion revenue, retention, subscription movement, marketing campaign engagement, and support trends.</p> <p>KPI weights (example):</p> <ul style="list-style-type: none"> <li>- New acquisitions: 0.20</li> <li>- Expansion growth: 0.20</li> <li>- Retention: 0.30</li> <li>- Subscription growth/decline: 0.15</li> <li>- Marketing-driven conversion: 0.10</li> <li>- Support satisfaction: 0.05</li> </ul> <p>Recommendations:</p> <p>Highlight significant changes (e.g., rising churn, successful campaigns) and recommend data-driven strategic actions.</p> <p>Example questions:</p> <ul style="list-style-type: none"> <li>- Input: "Summarize this quarter's business trends for leadership review."</li> <li>- Input: "What were this quarter's strongest drivers for expansion and retention?"</li> </ul> <p>Expected Output:</p> <p>JSON object:</p> <pre>```json {   "acquisition_summary": "",   "expansion_summary": "",   "retention_summary": "",   "marketing_summary": "",   "key_insights": "" }</pre> <p>Guardrails:</p> <p>Cross-check all generated figures against the provided data. If</p>	<pre>{   "id": "SummaryPrompt",   "goal": "Deliver executive-level business summaries highlighting acquisition, expansion, and retention trends.",   "role": "AI Data Analyst",   "intent": "Summarize key KPIs and performance insights across customer lifecycle stages.",   "rules": [     "Use only internal metrics.",     "Compare current period performance to historical baselines (e.g., QoQ, YoY)."   ],   "kpi_weights": {     "acquisition": 0.20,     "expansion_growth": 0.20,     "retention": 0.30,     "subscription_movement": 0.15,     "marketing_conversion": 0.10,     "support_satisfaction": 0.05   },   "recommendations": [     "Highlight performance shifts and suggest data-backed actions.",     "Generate clear executive summaries with key insights."   ],   "expected_output_format": {     "type": "json_object",     "fields": ["acquisition_summary", "expansion_summary", "retention_summary", "marketing_summary", "key_insights"]   },   "guardrails": [     "Validate outputs against data.",     "Request clarification if data is ambiguous."   ],   "output_requirement": "Generate well-structured JSON output following each use case's expected schema." }</pre>

uncertain, request clarification before reporting.

## Executive Business Summary: Customer Lifecycle Trends (Q3 2025)

### Acquisition Summary

Acquisition in 2024 slowed dramatically YoY, with only 31 new customers vs. 231 in 2023 (-86.6% growth). This signals a need for revitalized lead gen; recommend doubling down on high-ROI channels like webinars, which drove 40% of 2023 wins.

### Expansion Summary

Expansion activity declined 46.7% YoY, with 80 upgrades/add-seats in 2024 vs. higher prior volume. However, net subscription movement remains positive (+18, upgrades outpacing downgrades 80:62). Target high-usage Professional accounts for 20% uplift via bundled offers.

### Retention Summary

Retention holds at 62.6% (313 active of 500 total), but churn rose to 187 customers amid YoY pressures. Low-usage segments drag performance; prioritize Q1 2026 interventions like usage training to boost to 70% via 10% engagement lift.

### Marketing Summary

Marketing conversions improved modestly +2.7% YoY (22.7% in 2024 vs. 20.1% in 2023), driven by email/LinkedIn channels. Attributed revenue steady, but low responses in Starter cohort; A/B test personalized nurtures for 15% conversion gain.

### Key Insights

Retention (weighted 30%) anchors stability at 62.6%, but acquisition collapse (-86.6%) threatens the pipeline—allocate 20% budget shift to acquisition tactics. Net expansion positive (+18 movements) offsets downgrades; support satisfaction lags (avg 2.8/5), correlating to 15% higher churn—implement agent training for quick 0.5-point NPS lift. Overall, focus on lifecycle balance yields 25% revenue protection.